

(C) AMENDMENTS TO THE CLAIMS

1. ~~(CANCELED) An image printing method comprising:~~

~~receiving image data;~~

~~receiving informative data associated with said image;~~

~~generating data representative of at least one printable alignment indicator for said informative data; and~~

~~during a single pass of a single print medium through a printing zone, printing thereon said image data and said informative data with said alignment indicator proximate thereto.~~

2. ~~(WITHDRAWN/CANCELED) The method as set forth in claim 1 wherein each said alignment indicator is configured on said medium as a centerline position for a track of said informative data.~~

3. ~~(CURRENTLY AMENDED) The method as set forth in claim 1-~~

An image printing method comprising:

receiving image data;

receiving informative data associated with said image;

generating data representative of at least one printable alignment indicator for said informative data; and

during a single pass of a single print medium through a printing zone, printing thereon said image data and said informative data with said alignment indicator proximate thereto.

wherein each said alignment indicator is configured on said medium such that subsequent reading of said indicator provides a factor for calculating skew of a proximate track of said informative data with respect to a predetermined path of a reading sensor.

4. (CURRENTLY AMENDED) The method as set forth in claim 3 wherein each said alignment indicator comprises a plurality of markers printed at predetermined

1 positions within said track, interspersed with data fields thereof, such that each said
2 factor is used for feedback to [[~~active~~]] activate track servoing.

3 5. (CURRENTLY AMENDED) The method as set forth in claim [[-1-]] 3 wherein
4 each said alignment indicator provides a reference for calculating dither required to
5 keep a data sensor approximately centered on a track of said informative data during
6 a reading of said informative data.

7 6. (CURRENTLY AMENDED) The method as set forth in claim [[-1-]] 3 wherein
8 each said alignment indicator is aligned with a lateral edge of a track of said
9 informative data.

10 7. (CURRENTLY AMENDED) The method as set forth in claim [[-1-]] 3 wherein
11 said alignment indicator includes a plurality of lines printed adjacently to a track of
12 said informative data at a predetermined position with respect to a reference
13 associated with a path of the print media through the printing zone.

14 8. (CURRENTLY AMENDED) The method as set forth in claim [[-1-]] 3 wherein
15 each said alignment indicator is at least one character having a predetermined
16 relative horizontal design, printed such that a centerline of a track of said informative
17 data is also through a horizontal centerline of the design, said design further
18 comprising a feature which when read across various horizontal planes thereof
19 provides a tool for measurement representative of a current offset from the centerline
20 in a respective relative vertical.

21 9. (WITHDRAWN/CANCELED) ~~The method as set forth in claim 1 wherein said~~
22 ~~informative data is a plurality of contiguous data regions wherein each of said~~
23 ~~regions has each apex thereof marked with a printed regional delineation marker.~~

24 10. (WITHDRAWN/CANCELED) ~~The method as set forth in claim 9 further~~
25 ~~comprising:~~

~~1 said plurality of contiguous data regions forms a matrix of data regions, and
2 said matrix is provided with adjacently printed matrix coordinate identifiers.~~

3
4 11. (CURRENTLY CANCELED) A graphical print comprising:_____

5 _____
6 ~~an image area; and
7 a data area containing data information associated with said image, wherein
8 said data area includes at least one data block and at least one marker formed
9 substantially concurrently therewith and providing alignment registration indicia for
10 reading said data block from said print wherein said indicia are situated and
11 constructed for calculating alignment of said data relative to a predetermined path of
12 a read sensor traversing said data block.~~

13 12. (CURRENTLY CANCELED) The invention as set forth in claim 11 wherein
14 said data block is a linear track and said marker is a plurality of lines printed
15 proximate at least one end of said track at a position having a known distance from a
16 given reference associated with an axis defining a print media path through a printing
17 zone.

18 13. (WITHDRAWN/CANCELED) The invention as set forth in claim 11 wherein
19 said marker is a geometric figure having feature shape and dimensions with respect
20 to a centerline thereof coextensive with a centerline said data block, such that said
21 figure forms a tool for measuring offset from said centerline.

22 14. (WITHDRAWN/CANCELED) The invention as set forth in claim 13 wherein
23 said data block is a linear track and a said geometric figure is concurrently printed
24 substantially adjacent each end of said track and forms a tool for measuring skew of
25 said track relative to said predetermined path.

26 15. (WITHDRAWN/CANCELED) The invention as set forth in claim 13 wherein
27 said data block is a linear track and a plurality of said geometric figure are

1 ~~interspersed with data fields of said track such that during a reading of said track~~
2 ~~each said marker provides measurements for calculating current said offset for real-~~
3 ~~time feedback to active track servoing mechanisms associated with said reading.~~

4 16. ~~(CURRENTLY CANCELED) The invention as set forth in claim 11 wherein~~
5 ~~said data block is a linear track and said indicia is a top-of-track marker at each end~~
6 ~~of said track and a bottom-of-track marker at each end of said track.~~

7 17. ~~(WITHDRAWN/CANCELED) The invention as set forth in claim 11~~
8 ~~comprising:~~

9 ~~—— said data area having a plurality of contiguous data blocks, and~~
10 ~~—— each of said data blocks having printed delineations representative of~~
11 ~~boundaries thereof.~~

12 18. ~~(WITHDRAWN/CANCELED) The invention as set forth in claim 17~~
13 ~~comprising:~~

14 ~~—— said contiguous data blocks forming a matrix, and~~
15 ~~—— printed matrix coordinate identifiers proximate said matrix wherein said~~
16 ~~coordinate identifiers set forth the logical order of said data blocks.~~

17 19. ~~(WITHDRAWN/CANCELED) The invention as set forth in claim 17 wherein~~
18 ~~said data blocks comprise two-dimensional data arrays.~~

19 20. ~~(CURRENTLY CANCELED) The invention as set forth in claim 11 wherein~~
20 ~~said data information is digitized audio data.~~

21 21. ~~(CURRENTLY AMENDED) A scanning ink-jet print and read apparatus,~~
22 ~~having a printing zone, the apparatus comprising:~~
23 ~~controlling means for operating a plurality of functions of said apparatus; and~~
24 ~~connected to said controlling means,~~

1 transport means for moving a printing medium through said printing
2 zone,
3 adjacent to said printing zone, carriage means for scanning in a first
4 axis across said medium when said medium is transported in a second axis
5 substantially perpendicular to said first axis through the printing zone,
6 connected to said carriage means, encoding means for tracking
7 position and velocity of said carriage means during said scanning,
8 fixedly mounted to said carriage means, printhead means for printing
9 images and alphanumeric characters on said medium,
10 fixedly mounted to said carriage means, sensing means for reading
11 pixels on said medium, and
12 playback means for rendering digital audio data printed in
13 predetermined ones of said pixels.

14 22. (ORIGINAL) The apparatus as set forth in claim 21 wherein said sensing
15 means has a field-of-view less than a largest cross-sectional dimension of a pixel
16 rendered by said printhead means.

17 23. (ORIGINAL) The apparatus as set forth in claim 21 wherein the apparatus
18 includes a printing mode including the printing of the digital audio data representative
19 of information associated with an image printed on a same sheet of print medium.

20 24. (ORIGINAL) The apparatus as set forth in claim 21 wherein the apparatus
21 includes a playback mode including the rendering of audible signals obtained via
22 said sensing means from said digital audio data representative of information
23 associated with the image.

24 25. (ORIGINAL) The apparatus as set forth in claim 21 further comprising:
25 playback marking means for printing alignment indicators on said medium
26 proximate to the digital audio data.

1 26. (ORIGINAL) The apparatus as set forth in claim 25 further comprising:
2 dithering means for dithering said transport means for aligning said sensing
3 means to said digital audio data using said alignment indicators.

4 27. (ORIGINAL) The apparatus as set forth in claim 25 wherein said sensing
5 means is a point detector.

6 28. (ORIGINAL) The apparatus as set forth in claim 25 wherein said digital audio
7 data is a linear track and said sensing means is a linear array detector having a
8 predetermined height associated with a height dimension of said linear track.

9 29. (ORIGINAL) The apparatus as set forth in claim 25 wherein said digital audio
10 data is a linear track and said sensing means is substantially a slit detector having a
11 predetermined height associated with a height dimension of said linear track.

12 30. (ORIGINAL) The apparatus as set forth in claim 21 wherein said controller
13 functionally determines and compensates offset, scanning path skew, or both, of
14 said sensing means with respect to a centerline of said digital audio data during
15 reading thereof.

16 31. (ORIGINAL) A method of aligning a data set to a data reader, the method
17 comprising:
18 printing a photographic image on a sheet of paper;
19 concurrently to said printing a photographic image, printing on said sheet of
20 paper as said data set, audio data recorded substantially concurrently with making
21 said photographic image;
22 concurrently to said printing audio data, printing alignment indicia proximate
23 the data set wherein said indicia is at least one predetermined character having a
24 geometric association to said data set such that a positional relationship of said data
25 set to a predetermined path of said data reader is defined thereby;

1 when subsequently reading said audio data, from said indicia, calculating
2 offset, skew, or both, characteristics of said data set to said predetermined path; and
3 compensating for said offset, said skew, or both.

4 32. (ORIGINAL) The method as set forth in claim 31 wherein said alignment
5 indicia is a plurality of said at least one predetermined character, said plurality
6 aligned with a centerline of said data set and separating individual data fields of said
7 set such that closed loop feedback indicative of skew of said data set to said
8 predetermined path is made in real-time as each of said fields is scanned during said
9 reading.

10 33. (ORIGINAL) The method as set forth in claim 31 said further comprising:
11 dithering said sheet of paper during reading of said audio data for maintaining
12 a low signal-to-noise ratio during said reading.

13 34. (ORIGINAL) The method as set forth in claim 31 implemented in an ink-jet
14 printer.

15 35. (ORIGINAL) The method as set forth in claim 34 wherein said data reader is
16 mounted on a scanning carriage of said printer.

17 36. (ORIGINAL) The method as set forth in claim 31 wherein said data reader is
18 a digital camera.

19 37. (ORIGINAL) The method as set forth in claim 36 wherein said data set is
20 formatted as a two-dimensional array.

21 38. (CURRENTLY AMENDED) A method for aligning a linear audio data track for
22 a subsequent track scanning read head adapted for reading the track wherein the

1 track is printed proximate a substantially contemporaneously recorded and printed
2 graphical image, the method comprising:

3 aligning an approximate mid-height point of the read head wherein the read
4 head has span greater than a height dimension of said track with an approximate
5 centerline of said track;

6 dithering said read head while traversing a predetermined length of said data
7 track and recording any change in vertical location of top-of-track, bottom-of-track, or
8 both;

9 calculating track skew from said change; and

10 adjusting path-of-scan said read head for said skew for said subsequent track
11 scanning read head during a subsequent reading of said track.

12
13 39. (CURRENTLY AMENDED) A method for aligning a linear audio data track for
14 a subsequent track scanning, linear array detector adapted for reading the track
15 wherein the track is printed proximate a substantially contemporaneously recorded
16 and printed graphical image, the method comprising:

17 when the detector has a span less than a height dimension of said track,
18 aligning an approximate mid-height point of said detector to a linear edge of said
19 track, or,

20 when the detector has a span greater than a height dimension of said track,
21 aligning an approximate mid-height point of said detector to a centerline of said
22 track;

23 detecting changes of output characteristics of said detector while scanning
24 said track related to one or both linear edges thereof, and

25 calculating track skew from said changes of output characteristics.

26 40. (CANCELED) ~~A graphical image print comprising:~~

27 ~~— an image region having a dot matrix array of colored pixels forming a~~
28 ~~graphical image;~~

29 ~~— an informative data region, wherein digital code is formed as individual pixels~~
30 ~~wherein an non-printed pixel is representative of a digital one or zero and a colored~~

1 ~~pixel is representative of a complementary digital zero or digital one, respectively,~~
2 ~~and wherein combinations of single pixels in a one-dimensional or two-dimensional~~
3 ~~array for digitally coded audio information; and~~
4 ~~—— at least one informative data region alignment marker for aligning a read head~~
5 ~~to said data region.~~

6
7 41. (canceled) A print and read ink-jet apparatus comprising:

8 ~~—— means for printing digital data including data representative of graphical~~
9 ~~images and at least one field of digital audio data associated with said graphical~~
10 ~~images, wherein said digital audio data is printed with alignment indicia proximate~~
11 ~~thereto; and~~

12 ~~—— means for reading and playing said digital audio data and alignment indicia,~~
13 ~~wherein said alignment indicia is read prior to or in conjunction with said digital audio~~
14 ~~data for maintaining reading alignment between said means for reading and playing~~
15 ~~and said at least one set of digital audio data.~~

16 42. (ORIGINAL) A photographic imaging system comprising:

17 a digital camera having an audio recording and playback subsystem; and
18 a printer for printing image data and audio data associated with the images
19 recorded using said camera on a sheet medium,

20 wherein said digital audio data is printed on said medium without interfering
21 with visibility of said image data and with alignment indicia data proximate said audio
22 data for maintaining reading alignment thereof and such that said alignment indicia is
23 readable by said digital camera.

24 43. (ORIGINAL) The system as set forth in claim 42 said camera further
25 comprising:

26 an illumination source for illuminating alignment indicia data and/or audio data
27 in print that is outside the visible spectrum.

1 44. (ORIGINAL) The system as set forth in claim 42 wherein said audio data is
2 segmented and printed in a plurality of regions on said sheet medium, said alignment
3 indicia data further comprises:

4 a plurality of camera-readable section delineation markers such that said
5 alignment indicia data and associated segments of said audio data can be
6 sequentially retrieved from said plurality of regions.

7 45. (ORIGINAL) The system as set forth in claim 44 wherein said markers are
8 embedded with camera-readable encoded digital information.

9 46. (ORIGINAL) The system as set forth in claim 45 wherein said camera-
10 readable encoded digital information includes array partitioning information related to
11 location of segregated segments of said audio data.

12 47. (ORIGINAL) The system as set forth in claim 45 wherein said camera-
13 readable encoded digital information includes sequencing information for playback of
14 said audio data.

15 48. (ORIGINAL) The system as set forth in claim 45 wherein said camera-
16 readable encoded digital information includes print matrix designating information
17 including information for tracking and identifying audio data recapture order for
18 playback of said audio data by said camera.

19 49. (ORIGINAL) The system as set forth in claim 48 wherein said matrix
20 designating information provides automatic sequencing of said audio data regardless
21 of capture order.